ABRISA TECHNOLOGIES
HEF® PHOTONICS

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# Application Note

## Using UV Blocking to Prevent Skin & Eye Damage from Entertainment or Medical Lighting

Throughout the past few decades, it has been established that people are being damaged by ultraviolet light from the sun, and so we are being encouraged by the medical industry to take protective measures to limit the effect the sun has on our skin and eyes. UV blocking glass is one such way we can protect ourselves from ultraviolet light damage as well as isolating UV light for specific uses.

There are certainly other ways to protect us from low intensity ultraviolet light and new products come out all the time that offer this protection in various ways. Vast amounts of research and effort have been put into finding out just how dangerous UV light damage is and how to prevent it. Lotions, glasses and even clothing have been developed to prevent the carcinogenic effects of UV light exposed to our skin and eyes. These protection are effective when the source of the ultraviolet light is the sun, but what do you do when the sun is not the source?

While the sun is widely recognized as the most significant source of UV light it is not the only source we must work to protect ourselves from. Ultraviolet light is known to emanate from many different man made sources like high pressure arc lamps and fluorescent lamps as well as incandescent lamps and solid state light sources (LED's, OLED's and PLED's). In fact it is known that broadband or "white" light sources are almost guaranteed to produce at least some UV light along with the visible light intended.

Among all the light sources that we use just to see the world around us, there are also light sources that are used for other purposes. For a while now, Medical research and care facilities have been using light to treat patients as well as conduct experiments. One such treatment is light therapy used on the skin of someone who has acne vulgaris or a child that has neonatal jaundice. Other skin conditions that can be treated specifically with UVA (315 – 400 nm) or UVB (280 – 315 nm) light are psoriasis and eczema. Light therapy is also used by directing light into the eyes in order to help treat circadian rhythm disorders such as delayed sleep phase syndrome and can also be used to treat seasonal affective disorder. Another medical application for light is during surgery, where light from a high intensity arc lamp is funneled to the surgical site through optical fibers. It is critical to use UV and IR filtering in this application so that the unprotected internal tissue is not damaged by the light needed to see what the surgeon is doing.

Other medical uses for ultraviolet light are for protein analysis through UV-visible spectroscopy, DNA sequencing, drug discovery and medical imaging of cells. Through these applications, UV light becomes a valuable resource and a tool for accomplishing important tasks that not only help researchers find the source of health problems, such as errors in DNA but UV light is also being used to help correct health problems through development of new drugs and other medical technologies. In all of these tasks it is important that the UV light be contained or isolated through the use of UV blocking glass.

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Just like fire and many other forces harnessed for use as tools, ultraviolet light must be used with knowledge, caution and protection. While there are many ways to protect ourselves from the damaging effects of UV light, it is most important to recognize that protection is needed. Once that is determined, then the appropriate form of protection can be acquired and implemented. Abrisa Technologies' UV blocking glass is an excellent example of a form of protection that filters the light at the source, or through isolating UV light so that it is directed to the appropriate point of use without adversely affecting unintended tissue.

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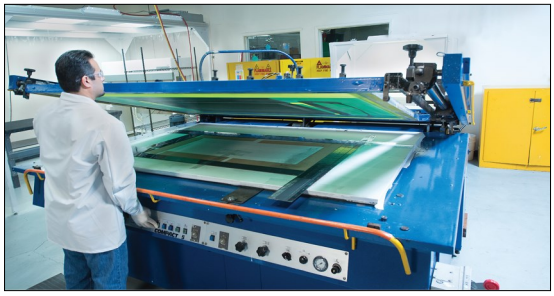
### Glass Fabrication

### Coating Deposition

### CNC Machining

### Strengthening - Chemical & Heat

### Screen Printing of Graphics



Abrisa Technologies, a member of HEF Photonics, is a globally recognized technology glass fabrication and optical thin film coating company with expertise in high volume manufacturing and engineering capabilities, delivering Total Solutions that provide excellent performance, fitness-for-use and economies of scale.

Our US based, state-of-the-art ISO 9001:2015 and ITAR registered facilities include Abrisa Industrial Glass in Santa Paula, CA and ZC&R Coatings for Optics in Torrance CA. These two divisions produce solutions from cut-to-order coated glass components to custom complex and ready-to-install fabricated, strengthened, optically coated, electronically enabled and branded sub-assemblies.

Our Total Solutions serve a variety of markets including Micro-Electronics, Defense and Avionics, Display, Industrial Automation, Optical Sensors, Imaging, Photonics, Medical & Dental, Life Science and more.

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